REMARKS

Claims 1-10 and 13-16 are pending. Claims 1-10 and 13-16 are rejected.

Claims 1-4, and 13-16 are rejected under 35 USC 102 (b) as anticipated by or, in the alternative under 103 (a) as being obvious over Hansen et al. US 5,589,256.

Claims 1-4, and 13-16 are rejected under 35 USC 102 (b) as anticipated by or, in the alternative under 103 (a) as being obvious over Hansen et al. US 5,789,326.

Claims 1-4, 6-10 and 13-16 are rejected under 35 USC 103 (a) as being unpatentable over Hansen et al. ('256) or Hansen et al. ('326) in view of Cook et al, US 5,562,740.

Claim 5 is rejected under U.S.C. 103 (a) as being unpatentable over Hansen et al. ('256) or Hansen et al. ('326) in view of Cook et al. and further in view of Smith et al. (US 2002/0090511).

Claims 6-8 are rejected under U.S.C. 103 (a) as being unpatentable over Hansen et al. ('256) in view of Cook et al. and further in view of Hansen et al. ('326).

Claims 1-8 and 12-13 are provisionally rejected under the judicially created doctrine of obvious-type double patenting as being unpatentable over claims 1, 5-8, 10-12 and 16-17 of copending Application No. 10/748930 in view of Cook et al.

Amendments to the Claims

Claim 1 has been amended to cite the cellulose fibers have been *crosslinked* with an effective amount of a *polycarboxylic acid* crosslinking agent. Support for this is found on page 2 of the specification, lines 16 – 29 and includes, among others, citric acid and malic acid used in the instant invention, pages 13 and 14, Table 2 and 3. The claim has also been amended to state that crosslinked fibers are bleached after curing, support is found on page 9, lines 19 -23. The Whiteness Index of the intrafiber crosslinked fibers is measured *after curing at 182°C to 215°C*, Table 4, page 15. The specification indicates that fibers can be cured at from 120°C to about 215°C, page 9, lines 19 - 21 and specific examples of curing are given in Table 4, page 15, at 182°C (360°F) and 193°C (380°F).

Claim 17 is a new claim which was canceled from claim 1 and originally appeared as Claim 12 in the application as filed.

The Rejection of Claims 1-4, and 13 -16 under 102(b) /103(a)

Claims 1-4 and 13 -16 are rejected under 35 U.S.C 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103 (a) as obvious over Hansen et al. (5,589,256).

Applicants submit the Examiner has not established a *prima facie* case of anticipation. A prima facie case of anticipation requires the presence of a single prior art reference disclosure of each and every element of the claimed invention arranged as in the claims.

Hansen et al. in the '256 reference do not disclose cellulose fibers crosslinked with an effective amount of a polycarboxylic acid crosslinking agent in the presence of from 1% to 10% of the weight of cellulose fiber of a C_4-C_{12} polyol and bleached after curing with a bleaching agent. Furthermore, the reference does not teach a Whiteness Index being measured after curing at from 182°C to 215°C and then bleached and the fact that the Whiteness Index is at least one unit greater than cellulose fibers crosslinked in the presence of from 1% to 10% of the weight of cellulose fiber of a C_4-C_{12} polyol and not bleached Because Hansen et al. do not disclose all the elements of the claim as arranged in the claim, the Examiner has not established a *prima facie* case of anticipation. Withdrawal of the rejection is respectfully requested.

Claims 1-4 and 13-16 are rejected under 35 USC 103 (a) as being obvious over Hansen et al. US 5,589,256.

The rejection of the Claims is respectfully traversed. Applicants submit the Examiner has not established a *prima facie* case of obviousness.

Claim 1 has been amended to recite the cellulose fibers are crosslinked with a polycarboxylic acid crosslinking agent in the presence of from 1% to 10% of a C_4-C_{12} polyol and bleached after curing. The Whiteness Index is measured after curing at 182°C to 215°C and then bleached and the bleached crosslinked fibers have a Whiteness Index of at least one unit greater than polycarboxylic acid crosslinked fibers prepared under the same conditions but not bleached.

For a *prima facie* rejection, there must be a suggestion, teaching or motivation, either in the reference or in the knowledge generally available to modify a reference, there must be a reasonable expectation of success, and all the claim limitations must be taught or suggested in the prior art. Furthermore, the reference teaches away from

curing at greater than 180°C since this would result in scorching and discoloration of the fibers.

The Hansen et al. ('256) invention discloses polymeric and non-polymeric binders for fibers and the use of such binders in binding particles to fibers. In particular embodiments the invention concerns binding superabsorbent particles to cellulosic fibers which may then be used, for example, to make absorbent fibers that are densified and incorporated into cellulosic products, column 1, lines 6-14.

Binders form coordinate covalent bonds or hydrogen bonds. The *binding through hydrogen bonds* of a carboxylic acid with an alcohol is shown in the figure in column 16, lines 30 -35. The binding of a polyol to cellulose through hydrogen bonds is shown in column 14, line 10 -30. On the other hand polycarboxylic acid crosslinking agents can react with, for example, cellulose to form a covalent bond with cellulose. When this occurs, the crosslinking agent which may have been able to act as a binder also, no longer has any binding capability.

The Examiner states that Hansen et al. in the '256 reference discloses crosslinked cellulosic fibers comprising particle binders in the Abstract. For clarification, the Abstract discloses cellulose fibers that have been crosslinked with a crosslinking agent and then a binding agent added to secure particles. As cited by the Examiner, column 6, lines 14-23 and 56 -57 does not refer to crosslinked fibers, rather, only to suitable cellulosic fibers to which superabsorbent particles are adhered by a binder. The reference does not disclose crosslinked cellulosic fibers that are bleached, rather the reference only teaches that bleaching processes may be used in pretreating the fibers (which are disclosed on lines 14 – 23).

The reference to column 38, lines 29 -36 list preferred types of crosslinking substances selected from a group consisting of urea derivatives, the preferred substance being DMDHEU. Additional crosslinking substances can be polycarboxylic acids such as citric acid.

The Hansen et al. '256 reference discloses non polymeric *particle binders* which includes fourteen compounds including polyols and polycarboxylic acids, column 16, lines 59 – 67. The preferred functional groups for the non polymeric binders may be selected *independently* or in *combination* from the group consisting of

an amino alcohol, a polycarboxylic acid, a polyol, a hydroxy acid, an amino acid, an amide and a polyamine. Other preferred groups of binders include eight binder groups that can be used independently. Additionally, there are there are combinations which include three binder groups that contain a group of two binders, three binder groups that contain three binders, three binder groups that contain four binders and four binder groups that contain five binders, column 19, line 50 to column 20, line 33. The '256 reference then discloses approximately thirty five functionalities and subgroupings of the non-polymeric binders, column 20, lines 34 – 61. It is within the context of these binders being used *individually or in combination* that they are used to bind particles to cellulose fibers *not* that they are used as crosslinking agents.

It is within the context of the binders being used to bind particles to fibers in an absorbent product that the '256 references teaches addition of the binder being added in the amount of from about 3 to 80 percent of the total weight of the product, column 4, lines 31 – 49, *not that this weight percent is used when the binder is used as a crosslinking agent.*

The '256 reference discloses that the particle binders and particles can be added before after, or simultaneously with curing but that in certain situations the binder can also form covalent intrafiber covalent crosslinks and states that polycarboxylic acids such as citric acid, polyols such as propylene glycol and polyamines such as ethylene diamine can function as crosslinking agents, and are consumed during the curing step in the formation of covalent crosslinks. Hence where the crosslinking agent is also a binder, steps should be taken to prevent the binder from being consumed as a crosslinker in the curing step, column 42, lines 31 – 46. Thus the reference does not teach that, in the context of this disclosure, that a polycarboxylic acid and a polyol, in combination, are used in the crosslinking of cellulose, rather, that these are used independently. Furthermore, even if they were used in combination there is no disclosure of the claimed addition level of the polyol. Note that the '256 reference states that the binders may be selected independently or in combination from the group consisting of an amino alcohol, a polycarboxylic acid, a polyol, a hydroxy acid, an amino acid, an amide and a polyamine and one binder group that can be used in combination is a polycarboxylic acid and a polyol, column

19, lines 50 -61. *If* the polycarboxylic acid and the polyol are used in combination in the case where the binders can crosslink and if, as the Examiner states, that the binders are added at the 3-80 weight percent level, then there is no disclosure as to what portion of the total binder level is a polycarboxylic acid or a polyol and therefore claimed amounts of polyol in the instant invention are not disclosed. Also, note that the '256 reference teaches away from curing above 180 °C which is sufficient to effect curing of the crosslinking agent without scorching the dry fibers and not discoloring the fibers. The instant invention however, teaches measuring the Whiteness Index after curing at 182 °C to 215 °C and then bleaching. Thus the results are also unexpected.

The Hansen et al. reference does not teach absorbent products made with cellulose fibers crosslinked with a polycarboxylic acid crosslinking agent in the presence of from 1 to 10 percent by weight of a polyol and the Whiteness Index, measured after curing at 182° C to 215° C and then bleaching, which is at least one unit greater than unbleached crosslinked fibers prepared in a similar manner.

The '256 reference does not disclose the structural limitations as claimed. The fibers of the reference are not bleached after curing at 182 °C -215°C, rather, they are bleached before being used in the Hansen et al. invention. The fibers of Hansen et al. are not crosslinked with a polycarboxylic acid crosslinking agent in the presence of from 1-10 percent by weight of a polyol. Applicants submit that in view of the Whiteness Index being measured after curing at a temperature above which Hansen et al. teaches against and then bleached, the structure cannot be the same as in the '256 reference.

There is no motivation, teaching or suggestion to look to the '256 reference for the instant invention. The reference does not teach bleached polycarboxylic acid crosslinked fibers in which cellulose fibers have been crosslinked with a polycarboxylic acid crosslinking agent in the presence of from 1 to 10 percent by weight polyol on cellulose. The fibers are not bleached after curing and there is no indication of the Whiteness Index. Also, the claimed amount of polyol is not taught in combination with crosslinking with a polycarboxylic acid and the Whiteness Index measured after curing at 182°C to 215°C followed by bleaching is not disclosed. Thus

all the elements of the claim are not present. Also the '256 reference teaches away from curing above 180 °C since this would result in scorching and a discoloration of the fibers and would result in fibers with inferior Whitness Index properties to the instant invention. Withdrawal of the rejection is respectively requested.

<u>The Rejection of Claims 1-4, and 13 -16 under 102(b) /103(a)</u>

Claims 1-4 and 13 -16 are rejected under 35 U.S.C 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103 (a) as obvious over Hansen et al (5,789,326).

Applicants submit the Examiner has not established a *prima facie* case of anticipation. A prima facie case of anticipation requires the presence of a single prior art reference disclosure of each and every element of the claimed invention arranged as in the claims.

Hansen et al. in the '326 reference do not disclose cellulose fibers crosslinked with an effective amount of a polycarboxylic acid crosslinking agent in the presence of from 1% to 10% of the weight of cellulose fiber of a C_4-C_{12} polyol and bleached with a bleaching agent after curing. Furthermore, the reference does not teach the Whiteness Index being measured after curing at from 182°C to 215°C and then bleached and the fact that the Whiteness Index is at least one unit greater than cellulose fibers crosslinked with a polycarboxylic acid crosslinking agent in the presence of from 1% to 10% of the weight of cellulose fiber of a C_4-C_{12} polyol and not bleached Because Hansen et al. do not disclose all the elements of the claim as arranged in the claim, the Examiner has not established a *prima facie* case of anticipation. Withdrawal of the rejection is respectfully requested.

Claims 1-4 and 13-16 are rejected under 35 USC 103 (a) as being obvious over Hansen et al. US 5,789,326.

The rejection of the Claims is respectfully traversed. Applicants submit the Examiner has not established a *prima facie* case of obviousness.

For a *prima facie* rejection, there must be a suggestion, teaching or motivation, either in the reference or in the knowledge generally available to modify a reference, there must be a reasonable expectation of success, and all the claim limitations must be taught or suggested in the prior art. Furthermore, the reference teaches away from

curing at greater than 180°C since this would result in scorching and discoloration of the fibers.

The Examiner states that Hansen et al. in the '326 reference discloses crosslinked cellulosic fibers comprising particle binders in the Abstract; column 10, lines 26-40; column 11, lines 4 – and 17 -19; column 42 lines 29 -42.

For clarification, the reference in the Abstract is silent as to crosslinked fibers and only discloses a binder being applied to bind particles to the fibers. The binders have at least one functional group capable of forming a hydrogen bond or coordinate covalent bond with the particles and at least one functional group capable of forming a hydrogen bond with the fibers.

The column 10 reference, lines 26 – 40, does not relate to crosslinked fibers, but rather that the fibers are wood pulp fibers or softwood fibers, which can be chemical or chemithermomechanical or combinations thereof, lines 37-40. Thus, contrary to the Examiner's statement the first two references do not disclose crosslinked cellulosic fibers comprising particle binders.

The column 11 reference, lines 4-5 and 17 -19 state only that bleaching processes may be useful in *pretreating* the fibers and bleached wood pulp fibers can be used. The reference only discloses a pretreatment of wood pulp fibers and does not disclose that the crosslinked cellulose fibers are bleached subsequent to curing.

Column 42, lines 29 -42 only discloses an apparatus for crosslinking fibers and is silent as to the use of particle binders.

The reference to column 43, lines 1 -8 lists *preferred* types of crosslinking substances selected from a group consisting of urea derivatives, the preferred substance being DMDHEU. Additional crosslinking substances can be polycarboxylic acids such as citric acid.

The '326 reference discloses production of high bulk fibers, column 42, line 18 to column 45, line 27 and indicates that the curing temperature is in the 140°C to 180°C range which is sufficient to prevent scorching and discoloration from scorching, column 45, lines 8 -18. Thus the reference teaches away from curing at higher temperatures due to the adverse effect on color.

In the context of producing high bulk fibers, column 42, line 17 to column 46, line 15 the '326 reference discloses that particle binders and particles can be added before, after, or simultaneously with curing. In certain situations the binder can also form intrafiber crosslinks. Polycarboxylic acids (such as citric acid), polyols (such as dipropylene glycol) and polyamines (such as ethylene diamine) can function as crosslinking agents and are consumed during the curing step in the formation of covalent crosslinks, column 46, lines 8 – 12. This specific disclosure does not state that cellulose is crosslinked with a polycarboxylic acid in the presence of a polyol, rather, a polycarboxylic acid such as citric acid, polyols such as dipropylene glycol and polyamines such as ethylene diamine *can* function as crosslinking agents and therefore steps should be taken to prevent the binder from being consumed as a crosslinker in the curing step. The Examiner states that the citric acid can be added independently of the binder, column 42 line 61 to column 43, line 8 and then states that the binders are added in an amount of from 1- 80 percent by weight of the fibrous material and from 1-25 being especially suitable. The Examiner concludes that, in some embodiments, the fibers are crosslinked in the presence of the particle binder that comprises a C_4-C_{12} polyol in the claimed amount. Applicants note that the '326 reference also teaches that polycarboxylic acids and polyols can act as binders, column 25, line 59 - column 26, line 63 and can be selected independently or in combination. Thus the Examiner incorrectly states that the fibers are crosslinked in the presence of particle binder that comprises a C_4-C_{12} acyclic polyol, in particular sorbitol. Since the combination of the polycarboxylic acid and the polyol could represent this 1 -80 % level there is no specific disclosure as the claimed amount of polyol as in the instant invention. Note also that the curing step is from 140°C to 180°C to prevent scorching and discoloration of the fiber but in the instant invention the Whiteness Index is measured after curing at from 182°C to 215°C thus also teaching away from the instant invention.

The Examiner states that sorbitol is claimed as a particle binder; applicant submits this is only in the context of the dependency on Claim 1 which claims a wet-laid web of fibers with hydrogen bonding functionality and a non-polymeric binder having at least one functional group capable of forming a hydrogen bond or coordinate covalent bond

with particles having a hydrogen bond or coordinate covalent bond forming functionality and at least one functional group capable of forming a hydrogen bond with the fibers. There is no disclosure that cellulose fibers are crosslinked with a polycarboxylic acid in the presence of a polyol and the Whiteness Index measured after curing at 182°C to 215°C and then bleached.

It is within the context of the binders being used to bind particles to fibers in an absorbent product that the '326 references teaches addition of the binder being added in the amount of from about 1 to 80 or 1 to 25 percent of the total weight of the product, column 4, lines 49 - 53, *not that this weight percent is used when the binder may be used for crosslinking cellulose fibers with a polycarboxylic acid crosslinking agent in the presence of a polyl.*

The '326 reference does not teach absorbent products made with cellulose fibers crosslinked in the presence of from 1 to 10 percent by weight of a polyol and the Whiteness Index measured after curing at 182°C to 215 °C and then bleached which is at least one unit greater than unbleached fibers prepared in a similar manner.

Applicants submit that the '326 reference does not disclose the structural and compositional limitations as claimed since the reference does not disclose cellulose fibers crosslinked with a polycarboxylic acid in the presence of a polyol in the amount claimed and which the Whiteness Index is measured after curing at from 182°C to 215°C and then bleached. Note that the '326 reference teaches away from curing at a temperature greater than 180°C to prevent scorching and discoloration of the fibers, column 45, lines 6 – 21. The reference recognizes the adverse effect of the higher curing temperature which would result in discoloration and therefore would have an adverse effect on the Whiteness Index. One skilled in the art would recognize that bleaching a crosslinked fiber prepared from crosslinking a polycarboxylic acid in the presence of a polyol and curing at from 182°C to 215°C would have different compositional characteristics than a crosslinked fiber that is not bleached and cured at a lower temperature. Applicants submit the structure of the crosslinked fiber of the instant invention is different from that in the '326 reference.

There is no motivation suggestion or teaching to look to the '326 reference for the instant invention since there is no expectation of success. The reference teaches

away from curing at temperatures greater than 180°C since this would have an adverse effect on color. It does not disclose crosslinking of cellulose fibers with a polycarboxylic acid in the presence of the claimed amount of polyol and bleaching after curing at 182°C to 215°C. Furthermore it does not disclose the Whiteness Index in the instant invention. Withdrawal of the rejection is respectfully requested.

The Rejection of Claims 1-4, 6 -10 and 13 -16 Under 35 U.S. C. 103(a)

Claims 1- 4, 6-10 and 13 -16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the '256 or '326 in view of Cook et al., U.S. 5,562,740.

Cook et al. teach bleaching of C_2- C_9 polycarboxylic acid crosslinked fibers to improve brightness and reduce odor. Cook et al. do not teach the use of a polyol, which is not a bleaching agent, during the crosslinking reaction to improve Whiteness Index. The reference teaches a two step process, first crosslinking cellulose fibers then bleaching with an alkaline solution of hydrogen peroxide to improve brightness and reduce odor. Cook et al. teach away from curing at elevated temperatures. Cook et al. state that citric acid, the preferred crosslinking agent can cause discoloring of the white cellulose fibers when treated at elevated temperatures and discloses that curing temperatures should preferably be less than 200°C since exposure to the fibers to such high temperatures may lead to darkening or other damage to the fibers, column 3, lines 33 – 37 and column 13, lines 46 – 49. In addition, unpleasant odors can be associated with the use of alpha- hydroxy polycarboxylic acids such as citric acid, column 3, lines 33 – 37.

Applicants submit there is no motivation, teaching or suggestion to combine the references. The '256 reference does not teach bleached polycarboxylic acid crosslinked fibers in which cellulose fibers have been crosslinked with a polycarboxylic acid crosslinking agent in the presence of from 1 to 10 percent by weight polyol on cellulose and bleached after curing. Also, the claimed amount of polyol is not taught in combination with crosslinking with a polycarboxylic acid and the Whiteness Index measured after curing at 182°C to 215°C is not disclosed. Furthermore the '256 reference teaches away from curing above 180 °C since this would result in scorching and a discoloration of the fibers and would decrese the Whiteness Index.

The '326 reference also teaches away from curing at temperatures greater than 180°C since this would have an adverse effect on color. It does not disclose crosslinking of cellulose fibers with a polycarboxylic acid in the presence of the claimed amount of polyol and bleaching after curing at 182°C to 215°C. Furthermore it does not disclose the Whiteness Index measured after curing at 182°C to 215°C and then bleached as in the instant invention.

Cook does not teach the bleaching of cellulose fibers crosslinked with a crosslinking agent in the presence of a 1-10 % by weight polyol on cellulose and does not teach the Whiteness Index increase of at least one unit over the same unbleached fibers which have a Whiteness Index of at least 70. Cook only teaches that bleaching of the crosslinked fibers can improve brightness to 80- 86 from 70 – 75, column 3, line 49-52. Cook teaches the use of a bleaching agent to achieve the increase in brightness and does not recognize that further increases can be obtained. In the instant invention the Whiteness Index increase is achieved in a two step process, first by crosslinking cellulose fibers with a polycarboxylic acid in the presence of a non bleaching agent, a polyol, and then further increasing the Whiteness Index by bleaching with a bleaching agent so that the bleached crosslinked fibers are at least one unit greater than crosslinked fibers prepared in a similar manner but not bleached. Furthermore, like the '256 and '326 references, Cook et al. teach away from curing at elevated temperatures. Withdrawal of the rejection is respectfully requested.

<u>The Rejection of Claim 5 Under U.S.C. 103(a)</u>

Claim 5 is rejected under U.S.C. 103 (a) as being unpatentable over Hansen et al. ('256) or Hansen et al. ('326) in view of Cook et al. and further in view of Smith et al. (US 2002/0090511).

Claim 1 is an independent claim, Claim 5 is dependent on Claim 1. Applicants submit that Claim 1 is not anticipated and nonobvious. If an independent claim is nonobvious under 103 then any claim dependent therefrom is nonobvious. *In re Fine,* 837 F.2d 1071, 5USPQ2d 1596 (Fed. Cir. 1988).

The '256 and '326 and Cook et al. references have been addressed above.

The Smith et al. invention relates to the use of refined cellulose fiber prior to crosslinking to achieve crosslinked fibers with low median desorption pressures and improved fluid drainage in acquisition and / or distribution layers compared to similar unrefined fibers, page 3 [0039]. The reference discloses refining the fibers to a freeness ranging from about 300 to about 700 CFS and then crosslinking the refined fibers. This action causes reduction in the average fiber length, [0054]. The fibers may be crosslinked in the presence of a reducing agent to prevent yellowing of the fibers during the crosslinking reaction or they may be bleached during or after the crosslinking reaction to improve their appearance, [0068] and [0069]. Thus Smith et al. recognize the adverse effect of crosslinking and either prevents the yellowing by the addition of a reducing agent or treats the crosslinked fibers during or after curing to improve their appearance. Like the '256, '326 references of Hansen et al. and the Cook et al. reference, Smith et al. teach away from curing at elevated temperatures. Specifically, Smith et al. teach the cellulose fibers are preferably cured at a temperature of from about 150°C to about 190°C and more preferably from about 160°C to about 175°C, [0064].

There is no motivation to combine the references.

The '256 and '326 references of Hansen, the Cook et al. reference and the Smith et al. reference all teach the adverse effect on color of elevated cure temperatures on fiber color or yellowing; all the references cite citric acid as a crosslinking agent but only Smith et al. cite malic acid, which like citric, is a hydroxyl polycarboxylic acid. Applicants submit it would not be obvious to crosslink cellulose with a polycarboxylic acid in the presence of a polyol which is not a bleaching agent, cure at 182°C to 215°C, a temperature range at which all the references teach away from, and obtain a Whiteness Index after bleaching which is at least one unit above crosslined fiber prepared in a similar manner and not bleached. Applicants respectfully request the objection to be withdrawn.

The Rejection of Claim 6-8 Under U.S.C. 103(a)

Claims 6-8 are rejected under U.S.C. 103 (a) as unpatentable over Hansen et al. the '256 reference in view of Cook et al. and further in view of Hansen et al. the '326 reference.

Claims 6-8 are dependent on Claim 1.

The '256 reference is disclosed above and does not disclose the specific acylic polyols and heterosides as in the instant claims. Cook et al. do not disclose any polyols at all.

The disclosure of Hansen et al., ('256) and ('326) Cook et al. have been addressed above.

The Examiner states that sorbitol is claimed as a particle binder, Claims 3 and 4; applicant submits this is in the context of the dependency on Claim 1 which claims a wet-laid web of fibers with hydrogen bonding functionality and a non-polymeric binder having at least one functional group capable of forming a hydrogen bond or coordinate covalent bond with particles having a hydrogen bond or coordinate covalent bond forming functionality and at least one functional group capable of forming a hydrogen bond with the fibers. There is no disclosure that cellulose fibers are crosslinked with a polycarboxylic acid in the presence of 1 to 10 percent by weight of a polyol and the Whiteness Index measured after curing at from 182°C to 215°C and then bleached. While the '256 reference does state that non polymeric binders can be selected independently, column 19, line 52, from a group consisting of a polycarboxylic acid, a polyol, and others, or in combination such as a polycarboxylic acid and a polyol, column 19, line 56, and citric acid is cited as a specific non-polymeric binder, column 20, line 39, the '256 and '326 references do not disclose the specific polyols used in combination with a polycarboxylic acid of the instant invention.

There is no motivation or teaching to combine the '326 reference with the '256 and Cook et al. references to arrive at the instant invention since in view of the curing conditions taught in all the references there is not a reasonable expectation of success since all teach curing at a lower temperature than in the instant invention which is at 182°C to 215°C. Even if they were combined, the combined references would not disclose all the elements of the instant invention including cellulose fibers that are

crosslinked with a polycarboxylic acid in the presence of 1 to 10 percent by weight of a polyol and the Whiteness Index measured after curing at from about 182°C to 215°C and then bleached which is at least one unit greater than fibers prepared in a similar manner but not bleached. Withdrawal of the rejection is respectfully requested.

The Provisional Obvious Type Double Patenting Rejection

Claims 1-8 and 12-13 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 5-8, 10-12 and 16-17 of copending application 10/748930. Applicants note the provisional double patenting rejection and will file a terminal disclaimer on the Examiner's indication of allowable subject matter.

CONCLUSION

In view of the, the amended claims and the foregoing remarks, applicants submit claims 1-10 and 13-17 are in condition of allowance. If any issues remain that may be expeditiously addressed in a telephone interview, the Examiner is encouraged to telephone the applicant's agent.

Respectfully submitted

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